

CRITERIA AND FACTORS IN THE SUCCES OF PROJECTS AND THEIR MANAGEMENT – SURVEY BY SWISS COMPANIES

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Abstract:

The study, which began in November 2016, aims to determine whether Swiss companies assess the performance of their projects and identify what are the criteria (PSCs) and factors (PFCs) more important that influence and determine success.

You also want to identify the number of successful projects and failure and what Project Management methodology is used by these companies.

The study is based on the research of Dr. Morteza Shokri-Ghasabeh and Kamyar Kavousi-Chabok (WSEAS Transactions on Business and Economics; (ISSN: 1109-9526)) South Australian university, which analyzes and classified criteria and factors for the performance evaluation of projects and project management according to the literature.

A survey in electronic form has been prepared and submitted to the Swiss companies operating in various economic and industrial sectors, in order to reach the highest number of possible answers. The survey is optimized by keeping the questions as understandable as possible and reducing the time required for filling no more than fifteen minutes, and is available in three languages (German, French and Italian) as well as a version in English.

The study will provide a general overview of what are the criteria and the most important factors for a project and for running a successful project in the Swiss companies broken down by language region, industry, type, size and Project Management methodology used.

The study is the basis for the establishment of a Swiss observatory for the evaluation and optimization of the management of projects in the company through initiatives and tools and will be the scientific basis for monitoring on a regular basis, such as an annual or bi-annual allowing the test, analysis, study and dissemination of results over time in Switzerland.

Keywords: project management, success, PMI, success criteria, survey, research

1. INTRODUCTION

It is now an established fact, project management (hereafter PM - Project Management) has developed into a real discipline, like functions such as the operational, IT, accounting and so on.

Organizations are increasingly using the PM as a tool for increasing their productivity and the achievement of strategic objectives and business. The taking of conscience of the link between the evolution of an organization and its ability to manage projects is becoming more widespread.

Consequently the popularity of methodologies and tools of PM is growing as well. Despite this, there are few scientific studies that highlight and link the performance of the company in project management with the real value generated by the investments in this discipline.

The literature, in the PM field, does not provide any consistent interpretation of the term "Project Success" and a standard definition or a common methodology (widely accepted) to measure the real success of a project does not yet exist. Currently there are various interpretations of the word "success" and in general we can say that it is perceived differently by the various project stakeholders. What can be a successful project for a category of stakeholders, it might not be at all (and indeed be a failure) to another category, because of many variables such as the function within the company, the culture, language, their own personal vision and so on. Based on these considerations, the result is a need to identify what are the factors that influence positively a project. For the same reasons it is important to clearly define what it means success for the specific project (the success criteria), so you can manage the stakeholders and to constantly have control over the project.

This study aims to understand if Swiss companies assess the performance of their projects and what are the factors for them and the most important criteria that lead to success. It also wants to know statistically how many successful projects evaluated compared to unsuccessful projects, and to know if there's been an evolution in positive time, thanks to the discipline of PM deeper knowledge and greater experience.

Thanks to the results obtained, you will be able to:

- Know what are the factors and the most important criteria that affect a project and lead to its success, hence knowing where to concentrate efforts and investments to achieve the expected results.
- Figure out whether a greater knowledge and experience in the PM discipline results in a greater likelihood of success in projects and as a result in the achievement of business objectives and business productivity.
- Know what are the processes that require a detailed and thorough check, as increasing the quality resulting positive influence on the project and the probability of success of the same.

2. DEVELOPMENT OF THE STUDY

A starting point for this study is the research "Generic Project Success Criteria and Factors: Literature Review Survey ans" Dr. Morteza Shokri-Ghasabeh and Kamyar Kavousi-Chabok (WSEAS Transactions on Business and Economics; (ISSN: 1109-9526)) university of South Australia, which are analyzed and classified the criteria and factors for the performance evaluation of projects and project management according to the literature.

The two scholars have analyzed the literature in the field of PM to project search criteria and success factors to extrapolate those from many sides have met with consensus. The criteria and factors resulting from this selection were the basis for the construction of a survey. Elaborate questions, divided into macro-processes to knowledge areas, have been submitted to the participating companies to their study.

This article reports results for Swiss companies operating in the three linguistic regions of the survey aforementioned adapted and designed for the Swiss reality. Also some questions were added to understand the evolution over time of the rate of successful projects than those of failure.

The first part is dedicated to the socio-cultural nature of the company responds, that enable you to understand whether factors such as language, the corporate culture, or the working area can affect and how the factors and criteria for success of a project.

He tried to keep the easily understood questions and a target that already know and suspect works in the field of PM, this to increase the quality of answers has been selected.

The survey is thus presented in four languages, English, German, French and Italian.

2.1. Broadcasting platform

For the distribution of the questionnaire and collecting responses, it selected the "TypeForm" tool available in the free version but limited to: https://www.typeform.com/

The choice is the daughter of the previous study "Switzerland Project Management Maturity Model - How to develop a PMMM to assess the maturity in Project Management in the firms Switzerland - Switzerland key study" conducted by the CAS team Senior PM 2015-2016.

After performing extensive evaluations and compared the most common for the creation and dissemination of online surveys tools, the choice fell on "TypeForm" that fully meets the requirements defined by the project team.

For practical reasons therefore, in order not to do double the work already done, he was chosen the same tool.

2.2. Distribution's List - Target

The distribution list is formed mainly by individual personal contacts of the researchers, trade organizations, professional contacts and by students and former students.

The list is made up of about 450 contacts who were sent the survey via email.

About 3/4 of the time available, was sent to everyone a reminder of attention in which it sought the kind participation in case you had not yet had the opportunity to respond to the survey.

3. CRITERIA & FACTORS

By definition, every project is different and unique for its size, duration and complexity. It follows that the criteria to measure success vary from project to project, making it extremely difficult to clearly define a list of universal success criteria on which everyone can agree.

At the same time each individual and / or stakeholders often interpret the success of the project in different ways based on many variables, sometimes subjective and personal.

Several studies confirm that the perception of the success of a project differs according to the person, nationality, type of project and the type of contract. It is referred to as a multidimensional concept.

In the most common methods of PM is called a successful project if it meets the requirements in terms of time, cost and quality; the so-called triple constraint. But there are a number of criteria and success factors that are often overlooked, if not omitted altogether, and which play a crucial role in the success of the project.

The CHAOS Report conducted by the Standish Group very well highlights this concept, testifying by collecting data and real cases that compliance with the triple constraint, then the timing, cost and quality / environment, is indeed important but is not enough to the success of the project / product.

Before you venture into the specific of these criteria and factors, it should figure out precisely the difference between the two, since it is not always obvious.

The success criteria (PSCs) are the standards by which a project is judged to determine whether it was a success or not in the eyes of stakeholders. One can therefore conclude that the criteria are used to measure success.

Success factors instead (PSFS) are elements that facilitate, in any way, achieving success, defined by the success criteria. Also they vary from project to project, as they vary the success criteria because of personalities and functions of the people that define them.

Searching through the literature of Dr. Morteza Shokri-Ghasabeh and Kamyar Kavousi-Chabok (WSEAS Transactions on Business and Economics; (ISSN: 1109-9526)) South Australian university, has allowed to group and classify criteria and the most important factors according to many scholars.

It was possible to find out what they have achieved a greater consensus among the experts.

The following describes the table resulting from this research:

Table 1: Morteza and Kamyar research result

Factors	9		Stakeholders Satisfaction	Quality	Top Management Support	Project Team	be .	Project Contracts	Project Risk Management	Resource Availability	Project Control	Project Change
References	Time	Çost	Stal	8	Sup Sup	Pro	Scope	8 8	Pro	Ava Ava	ž.	ž.
Cooke-Davies [15]	4	4		4	4	4	4		4			4
Young [36]	1	4	7	4		,	4		7	,	4	$\overline{}$
White & Fortune [37] Slevin & Pinto [38]	7	7		7	7	7			V	1		\vdash
Westerveld [28]	-V	-V	4	À		À		4				
Nguyen, Ogunlana & Lan [30]	4	4	4		4	4				4		\Box
Ashley [39] El-Saboni, Aouad & Sabouni [40]	7	7	1	7		V						J
Ahadzie, Proverbs & Olomolaive [18]	V	V	Ų.	-√								
Ashlev et al. [41]	4	4	4	4								\Box
Chua et al. [42] Collins & Baccarini [12]	7	7	- 1	4				√				\vdash
Kerzner [43]	7	7	7	7		_						\vdash
Armstrong [44]	V	V	V	4								
Lim & Mohamed [45] Lester [22]	V	4		4	4	V		1	V		4	\sqcup
Thomas & Fernandez [46]	V	7	V	4	V	V		٧			٧	\vdash
Hartman & Ashrafi [33]	V				4		4			4		\vdash
Dvir et al. [9]	V	V	-					V				\Box
Freeman & Beale [47] Dvir et al. [17]	1	7	7	4		√						\vdash
Hughes, Tippett & Thomas [20]	7	- V	· ·	4								\vdash
Dvir, Raz & Shenhar [48]	V	√		4								
Linberg [49]	4	4	7	4								\Box
Belout & Gauvreau [27] Ward [50]		4	٧	4	4		al .				al.	\vdash
Paulk et al. [21]	V	V		4	,		,				,	\vdash
Rose [24]	√	4		4								
Munns & Bjeirmi [14] Chan & Chan [51]	7	7		1								\vdash
Sanvido et al. [52]	V	V		V		-V		-V				-
Cleland & Gareis [16]	V				4							
Duncan & Gorsha [53]	1	4										$\overline{}$
Arora [54] Phua [34]	V	4			4			4				\vdash
Iver & Jha [32]					1			,				$\overline{}$
Avots [3]					-V							
Chung & Huda [31]		7			4							\longrightarrow
Cooper & Kleinschmidt [55] De Wit [13]		V	V									\vdash
Dvir et al. [56]	4											
Lipovetsky et al. [57]			4				,					$\overline{}$
Shenhar & Dvir [58] Shenhar [59]							7	_				\vdash
Agarwal & Rathod [25]							À					
Paolini & Glaser [60]			4									
Pinto & Mantel [61]			7			_						\vdash
Pinto & Slevin [62] Pinto & Slevin [63]			7			_						\vdash
Procaccino et al. [19]			Ž									
Procaccino & Verner [29]			4									
Verner, Evanco & Cerpa [35] Wateridge [64]	-		4			-			4			\vdash
Clarke [65]			,				4					\vdash
Shenhar, Dvir & Levy [66]			4									
Dvir & Lechler [26]	30	29	24	24	12	9	8	6	5	4	3	3
Frequency									3	4	3	3
Percentage	54%	52%	43%	43%	21%	16%	14%	11%	%6	%4	%\$	2%

According to the table, literature defines as the most important criterion the time, with 54% of the vote, followed by cost (52%) and the satisfaction of stakeholders and the quality (43%). far behind the support from the top management (21%).

The literature seems to confirm the theory proposed by the most common design methodologies, offering the triple constraint as a central design element.

The study seeks to compare the results of research of Dr. Morteza Shokri-Ghasabeh and Kamyar Kavousi-Chabok with the reality of Swiss companies, to see if indeed the theory is confirmed in practice and whether the design methodologies are actually taken into account, or if there are no criteria and factors described in the theory that has major influence on a project.

4. SURVEY

Based on the research of Dr. Morteza Shokri-Ghasabeh and Kamyar Kavousi-Chabok, in order to collect the data of Swiss companies has been developed an electronic survey.

The first part of the questionnaire is devoted to questions of social and cultural nature, in order to determine whether these elements can affect the perception of success.

Following the survey it is divided into 11 main areas, which are areas of knowledge, on which the respondent is asked to give his opinion through several sub-questions which in turn focus on certain criteria and success factors.

For the survey it was then made head of the following structure:

Table 2: Survey structure

SECTION	NUMBER OF SUBSECTIONS	SECTION SUBJECT	SUBSECTIONS SUBJECTS	TARGETED PSC & PSF		
1	6	Project Time	Activity Definition Activities Sequencing Activity Resource Estimation Activity Duration Estimation Schedule Development Schedule Control	Time Project Control • Time		
2	1	Project Cost	Cost Estimation	Cost		
3	3	Project Quality	Quality Plan Quality Assurance Quality control	Quality Project Control		
4	3	Project Scope	Scope Plan Scope Definition Scope control	Scope Project Control		
5	4	Project Plan	Clear Objectives Clear Project processes Project team member	Top Management Support Project Team		
6	4	Project Communication	Communication plan Information Distribution Performance Report Stakeholders Management	Stakeholder's satisfaction		
7	3	Project Risk	Risk Management Planning Risk Identification Risk Monitoring and Control	Risk management Project Control		
8	1	Project Change	Project Change Plan	 Project Change 		
9	2	Project control	Proper Project Control Troubleshoot	Project control		
10	3	Project HR management	HR Plan Acquire Project Team Manage Project Team	Resource Availability Project team		
11	3	Project Procurement	Plan Purchases Plan Contracting Request Seller Reponses	Project contracts		

4.1. Criteria and success factors

The criteria and success factors taken into account for the study and submitted to the participants are listed below and briefly described.

Time

The literature shows that the time (and scheduling) is considered one of the criteria and the most important factors in a project. The actual time is one of three elements of the triple constraint. For time is defined so that the deadlines, whether interim or project end. Time management can be seen as a factor, and the respect of time as a criterion for evaluating the project.

Costs

Each project depends on the budget and the costs, in one way or another. This is another element which form the triple bond. The literature considers the cost management is very important and therefore a detailed schedule of them is vital to the success of the project.

Quality

Quality can be understood as a quality product or process quality. Either way, have a quality management plan is considered by the literature as a very important and influential to the outcome of the project. Minimum quality standards must be defined in advance, and qualitatively high processes facilitate the achievement of these standards.

Proiect control

How to design control means the control of the triple bond continuous throughout the project. The triple constraint is a mechanism that allows to have the project under control and consequently lead to success. The triple constraint focuses on the following factors and key criteria such as time, cost, scope and changes.

Scope

It is established in the literature that a clear and precise definition of the project objectives is within the important factors for the success of the project. You know, and detailing precisely the scope of work that will satisfy the customer and achieve their goals, you can also more easily control the project if the targets were clearly defined

Projects changes

An effective management of change and the quality is synonymous with a mature company in the management of their projects. Continuous planning and control of the project, are factors that have a major impact on the success of the project. Only continuous reassessment and re-planning their own plans (due to changes) will increase the chances of success.

Stakeholders satisfaction

In any project, regardless of their point of view regarding the success, the stakeholders play a crucial role. In the literature examined, virtually all scholars agree on the importance of stakeholder satisfaction, whether they are internal or external (customers then in effect). It remains controversial the issue of how to actually measure the satisfaction of stakeholders.

Project team

People are the project. A project without the people even exist. Consequently, it is thus established the importance of this factor. A competent project team is considered by many researchers as a facilitator factor to achieve the project objectives and its success.

• Top managment commitment

Only thanks to the support of top management a project may have the credentials and the ability to be completed in accordance with the triple constraint. Thanks to the support of top management will be sure that the project and its objectives reflect and follow the strategy adopted by the company. This allows the project to be in effect a strong added value for the organization.

Avaibility of resources

Several scholars believe the availability of resources, understood as material and human resources, an important factor for achieving project success. For availability of resources is the capacity and the ability to have the resources and the allocation of these can actually be applied to the project.

• Projects contracts

The project contracts, dedicated to the acquisition of resources, can be seen as facilitators in the implementation phase and as a support to top management in the optimization of project costs. Scholars believe the ability to aggregate a team of external specialists, and motivate them to act like a team broken in an important success factor.

• Risks management

Some scholars believe important to the success of the project to have a detailed plan of risk management. Great impact of risk management greatly on the ability to anticipate problems and increases the chances of success.

5. RESULTS

5.1. Target and Limit stops

The questionnaire was sent in electronic form (e-mail).

5.2. Results

a. Target and the limit stops

The group of contact was very heterogeneous, among them there are representatives of Swiss companies operating in the three major speaking language region and working in very different economic or industrial sector.

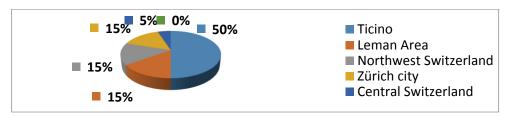
Concerning the functional level of the participant, they are mainly on the middle-high level of the organization's hierarchy and holding positions ranging from Project Manager to CEO, through CIO and head of HR. Alumni and ex-alumni of the Swiss Universities are also part of the group of contact.

b. Results

Following are the results, with the illustration of some table and graphic.

• Origin of participant

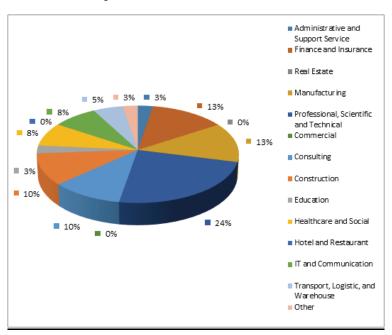
Picture 1: Origin of participant



Most of the participants (50%) are from the Italian part of Switzerland, as is also where the authors and the study are coming from. The rest are more or less equally from the Northwest of Switzerland (15%) the Leman area (15%) and from the economic center of Switzerland, Zurich city (15%). A small percentage of who responded (5%) to our survey is from the central part of Switzerland, that include the state of Zug, Uri, Lucerne among the most important.

Working Sector

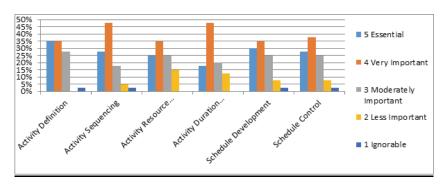
Picture 2: Working sector



Near to a fourth (24%) of the respondents are active in the Professional, Scientific and Technical sector, reinforcing the idea that Project Management is still strong related to the more technical jobs. Two working sector are equally represented (13%), those are Finance and Insurance and Manufacturing. Two other working sector share a 10.5% of the total, those are Consulting and Construction. IT respondent are only a 7,8%, less than anyone have could expected.

- Evaluation of Success Criteria and Factors
 - Time

Picture 3: Time evaluation

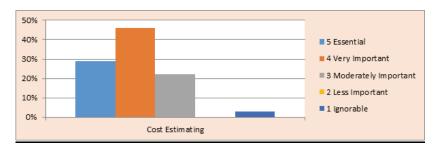


When speaking about the time management in a Project, the graph shows us that the "Activity Definition" process scores the most "Essential".

35% of respondents believe that this is an essential factor. Others processes, like the "Activity Sequencing" and the "Activity Duration" are found "Very Important", but apparently not so important as the activity definition.

Costs

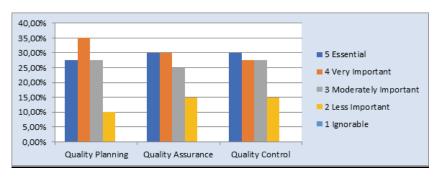
Picture 4: Cost evaluation



"Cost Estimating" is considered by the 45% very important. It is curious to notice that there are some participants (3%) who believe that estimating the costs of a project could easily be ignored.

Quality

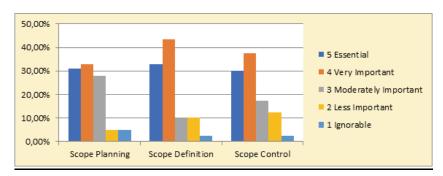
Picture 5: Quality evaluation



When we look at the quality factor of a Project, more or less all participants retain all the processes (planning, assurance and control) of the same importance, between essential and very important. No one (0%) would ignore the quality processes.

• Scope

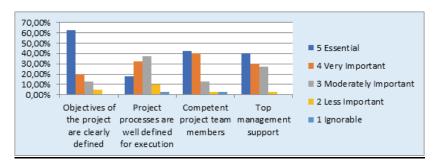
Picture 6: Scope evaluation



The most important factor on the Scope knowledge area is considered to be the "scope definition". 33% think it is essential and 43.50% very important. Scope planning and scope control are just a few percentage points behind.

Project Plan

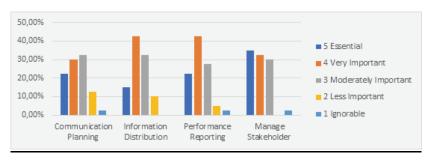
Picture 7: Project Plan evaluation



Clearly and with no discussions, when talking about the project plan area, the most important factor is to clearly define the objectives of a project, and a big 62.50% of the respondents agrees.

Communication

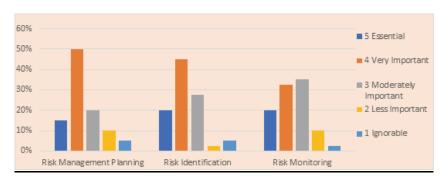
Picture 8: Communication evaluation



Information distribution and performance reporting are the most important factors on the communication knowledge area of a project, where 42.50% of respondent agrees on.

Risk

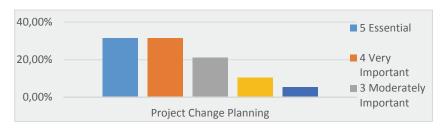
Picture 9: Risk evaluation



Have a plan for the risks management is considered the most important factor. 50% agrees on this factor to be very important. 20% also retain the risk identification an essential process.

Project Change

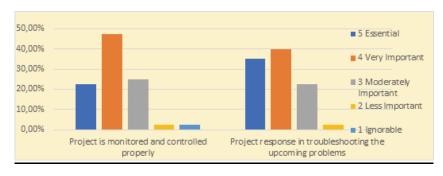
Picture 10: Project Change evaluation



63% of the respondent believes in the project change planning as an essential (31.5%) or very important (31.5%) process of a project. To notice there is still some participant who thinks this process is ignorable (5.5%)

Project Control

Picture 11: Project Control evaluation



HR Management

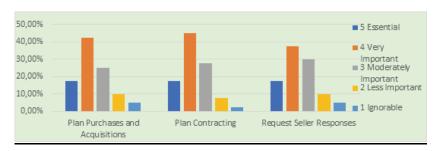
Picture 12: HR Management evaluation



When compared to other criteria and factors, Human resources and its process (planning, acquire and manage) are considered more "moderately important" that essential or very important. It has not to be forgotten that a project it's first of all made of people.

Project Procurement

Picture 13: Project Procurement evaluation



PM Success vs Project Success

Picture 14: PM Success vs Project Success

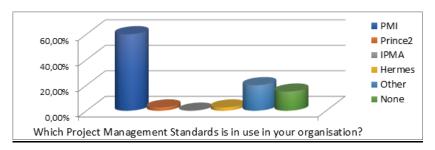


Often a successful project doesn't have to be successful on its management. The world is full of examples, like the Sydney's Opera House project. The most and known Sydney tourist attraction was a huge failure under project management terms, but the final product was, and still is, the biggest Australian success and therefore the most successful tourist attraction.

55% of the respondent however agrees on that the Project Management it is not different from the Project success. 45% or them think it is, reinforcing the theory explained above.

Project Management Standards

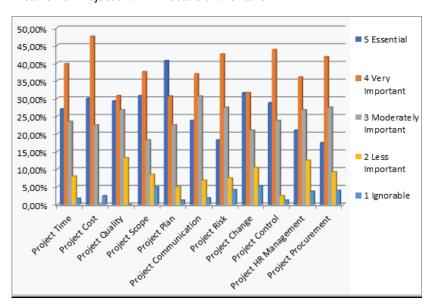
Picture 15: Project Management Standards



This result it's not surprising, PMI is the most used and implement PM standard among the organization (60%). Other standards, like Prince2 and IPMA are almost nowhere in place and 15% still do not have any PM Methodology.

Project and PM Factors and Criteria

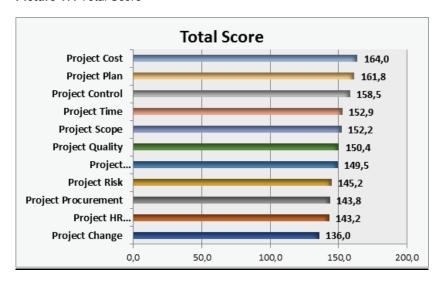
Picture 16: Project and PM Factors and Criteria



When looking at the overall PM criteria and factors results:

- Almost 50% of the respondent see the Project Cost factors as "very important"
- 40% think that having a project plan and respect it it's an "essential" factor, this factor include: having the project goals well defined, having the top management support and having a competent project team
- The less "essential" factor surprisingly it's the project risk where most of the respondent (42.5%) thinks of it as "very important" or "moderately important" (27.5%).

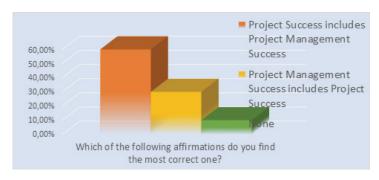
Picture 17: Total Score



A weighted final result has been calculated. Project Cost comes first with a total score of 164, followed by Project Plan (161.8) and Project Control (158.5). Again, Project Risk comes just on the low half of the ranking, where Project Change lead the less important and critical factors according to the respondents.

• Project Success Definition

Picture 18: Project Success Definition



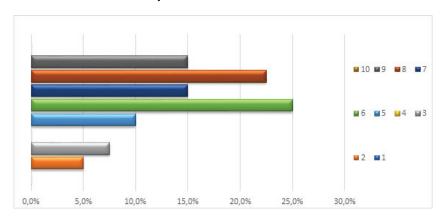
According with the 60% of the participants, a successful project could be defined as such if its Project Management was also of success.

Other 30% thinks that a successful Project Management it is such only if the Project or Product it's also of success.

Number of successful project

Over 10 Projects, how many are they considered of success?

Picture 19: Successful Project

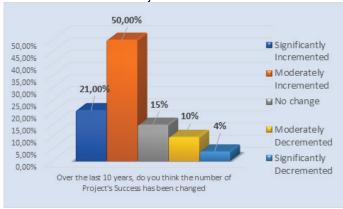


Of 10 Project, 22.5% of respondents retains that 8 of them are considered of success, that's quite a high rate of project success. Another 25% says that just 6 of them could be considered of success. More optimistic people (15%) says 9 are of success and 5% think just 2.

When compared with the CHAOS report made by the Standish group, the Swiss situation could be seen not so bad as the research would prove.

Successful project rate is increasing

Picture 20: Successful Project Rate



This is good news, 71% of the participants see an incremental trend among the project successful rate. Between them, 21% see a significantly increment and the rest (50%) a moderately increment. 14% think there a general decrease on the successful project.

Again, the Swiss situation seems to be better as one cold expect from the CHAOS report.

• Comparison with the literature and the Australian Study

Table 3 - Comparison with the literature and the Australian Study

PSC/PSF	Literature	Swiss Survey	Australian Survey
Time	1	4	9
Cost	2	1	2
Stakeholder's satisfaction	3	7	4
Quality	3	6	12
Top Management Support	4	2	1
Project Team	5	10	8
Scope	6	5	5
Contracts	7	9	7
Risk Management	8	8	6
Resource Availability	9	10	11
Project Control	10	3	3
Project Change	10	11	10

When comparing the result of the Swiss survey with the one coming form Australia few considerations could be taken:

- The PSC/PSF that forms the triple constraint (time, cost and scope/quality) scores high on both surveys.
- The Swiss do not think stakeholder's satisfaction (7) it's such important as the literature (3) and the Australian believe (4).
- Both the Swiss and the Australian survey have find that top management support is more important than what the literature would let think.
- The Swiss respondent think the quality it is far more important than the Australian, even if the literature say it's even more important that both survey have find.

6. CONCLUSION

The survey proves that there are major changes not only between the literature and the professional's opinion on what are the most important and critical success criteria and factors, but also between different country (Switzerland and Australia in this case). Different country implies different culture, different style of working, but also different Project Management culture level and different knowledge on the PM discipline. Some criteria and factors reflects what are generally considered as very important aspects of a project; the triple constraints is considered as very important also by the professional and not only by the standard. Cost (1), Time (4) and Scope/Quality (5/6) scores pretty high on ranking. Only the top management support is considered on the same level of importance. This reinforces the thesis that a project needs the relevant support to succeed; otherwise their chances to fail will increase.

Surprisingly, in Switzerland the professional care less about the stakeholder's satisfaction (7) than the Australian and than what the literature believes it is essential (3). They bridge the gap with a more believing in the quality of a project/product (6), leading consequently to the stakeholder's satisfaction. The Swiss respondents are positive about the rate of the successful project; they say this rate is increasing in the last years. This fact would lead to a belief that the increasing of the general knowledge on Project Management and a more diffusion of the standards also lead to a great chance of a project to succeed.

Finally, the survey reinforces the idea that the definition of success it's different on the eyes of the people that are looking at it, and there are many variables that influence the perception of success. Like the charts shows, the country and culture of the respondents is on of those variables.

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